ON POIVRETTE.

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Read at the Meeting, Jan. 12th, 1887.

The substance known in the pepper trade as "Poivrette," or "Pepperette," is now so frequently used for the purpose of "fraudulently increasing the weight and bulk" of commercial pepper, that the members of this Society ought never to omit a careful search for it in all samples of pepper officially submitted to them. As many commercial analysts do not appear to be yet familiar with poivrette, and as some public analysts have applied to me for specimens, a short account of it may be of use to the Society. It made its first appearance in Liverpool last summer, when more than one wholesale pepper-merchant brought me samples, and inquired what the substance was, and what were its properties. During the last three months I have met with it in between twenty and thirty retail samples of pepper.

Poivrette is a pale, slightly buff, or cream-coloured powder, resembling in the bulk the principal middle layers of the pepper-berry, when ground; and when mixed with pepper cannot be distinguished by the eye, nor even by the hand-lens, from particles of pepper. In the earlier samples the coarser particles could be isolated by spreading the pepper on a stiff sheet of paper held in a nearly, but not quite horizontal position; on tapping this with the finger tips, so as to make the larger particles jump gradually to the lower edge of the sheet, the poivrette particles could then be picked out, and easily distinguished from pepper by crushing them between the teeth. Recently, however, it has been so finely ground and sifted that it cannot always be partly separated in this way, although the toughness and hardness of the particles can always be distinguished by the teeth in a mixture.

Microscopic examination, with a $\frac{1}{6}$th or $\frac{1}{8}$th objective, shows that it consists of pale dense ligneous cells, some entire and marked with linear air spaces, some torn and indistinct.

The following letters (which afterwards appeared in some local newspapers) indicate the country from which it comes:—

"The following letter from Leghorn has been received by a local spice house, and similar letters have been circulated throughout the country :—

"'LIVORNO, *August* 1, 1886.

"'Dear Sirs,—I send you by this post two samples of an article called 'pepperette' (white and black), which is made of the pulp of a fruit growing in this country, which has the power of retaining the piquancy of pepper when it has been mixed with the same in the proper proportion. This is warranted to consist of this purely vegetable substance, and to contain nothing deleterious, consequently to be in no way detrimental to the health. The price is £8 per ton of 1,000 kilogrammes, goods delivered c.i.f. in Liverpool, packed in 2 cwt. bags; bags free, no tare, shipping weight; 2½ per cent. discount for cash. I export my pepperette very largely all over the Continent and to Great Britain, where, on account of its cheapness, it is used very much for blending pepper, which is sold as "prepared pepper," or "pepper not warranted genuine," in the same way as is done with mustard, or with ground coffee and chicory (the so-called French coffee). If so desired, the white pepperette can be had much lighter. If you desire any references I shall be happy to furnish you any amount in England, as well as on the Continent.—Yours truly ——————.'

"A reply was forwarded, in due course, to the manufacturers of "pepperette," asking for further particulars and references, and the following letter was received :—

"'Dear Sirs,—I am favoured with your letter, 16th instant, and note contents, "Pepperette." What you ask me is a question that is very frequently asked me by English houses, but I am always in the impossibility to reply to it; in fact, I *must not* do it. When I sell my "pepperette" (or "poivrette") to a firm, I bind myself not to mention their name to anybody, and will do so with your good selves, if I have the pleasure of being favoured with your orders. I make it a point of the question of secrecy with all my customers for this article, and cannot make an exception with you. Give me a sample order of a few tons, and I shall execute it to your entire satisfaction; payment after receipt and approval of the goods. However, for your guidance, and according to what I promised with my letter of the 13th inst., I now beg to subjoin a few English references, who can inform you concerning my respectability, but kindly do not mention to them anything about "poivrette," the same being houses from whom I import English goods (*i.e.*, my firm, ——————). As already written, I shall be able to send sample of white poivrette of lighter colour by October next. In the meantime I trust to be favoured with your esteemed orders, and remain, dear sirs,

"'——————.'"

I therefore examined, amongst other substances, walnut-shells, almond-shells and olive-stones. The cells of walnut-shells are dotted, though otherwise similar to poivrette; the almond-shells greatly resemble poivrette, and olive-stones still more closely resemble it. Chemical analysis indicates the closest correspondence between poivrette and olive-stones, as the following figures show :—

	Ash.	Matters soluble by boiling in dil. acid.	Albuminous and other matters soluble in alkali.	Woody fibre, insoluble in acid and alkali.	Starch.
White pepperette	1·33	38·32	14·08	48·48	None
Black pepperette	2·47	34·55	17·66	47·69	,,
Ground almond-shells	2·05	23·53	24·79	51·68	,,
Ground olive-stones	1·61	39·08	15·04	45·38	,,

The stones of olives, imported in pickle for table use, gave 3·68 per cent. of ash, but well washed olive-stones, thoroughly burnt to a white ash, gave under two per cent. of ash-like poivrette. "White poivrette" is therefore cleaned very pale, and perhaps partly bleached olive-stones, or precisely similar tissue; black poivrette is the same, mixed with a little black husk. It is to be noted that, although it contains no starch, yet it yields some sugar to Fehling's solution, after being boiled for some time with dilute hydrochloric acid. The quantity depends on the length of time and strength of acid, but may be stated approximately about ten per cent. It is important to bear this fact in mind when making a full chemical analysis of pepper containing poivrette. After removing from such a mixture the matters soluble by boiling in dilute caustic alkali, the woody fibre which remains has a yellow colour; it consists of the poivrette, and some of the cells of pepper-husk and one of the subcortical layers of the pepper-berry. The pepper-cells are made lighter, and the poivrette-cells darker by the alkali, so that the two are more nearly of a similar yellow colour after treatment with alkali. This renders it more difficult to distinguish such of the cells as have somewhat similar markings; but it enables us to distinguish more clearly, as poivrette, the many torn particles which have no definite form or markings. The final examination of the complete cells is better made with good daylight rather than with artificial light, and in a portion which has been treated with water only.

The pepper cells are mostly different in shape, and are coloured, and have generally a dark substance in the interior. They are not numerous, but the quantity varies in commercial samples, owing to the modern practice of decorticating the pepper berry to every different extent possible, and mixing the various portions so obtained, including husks, in every variety of proportion with each other or with ordinary pepper. Each individual analyst must make himself familiar with both kinds of cells, as no description can convey an adequate idea of either. In order to form a judgment regarding the proportions of the different chemical constituents of commercial samples, we require to know the chemical composition of the different layers of the pepper-corn; and I hope soon to communicate to the society some figures bearing on this point, as well as to notice some other substances used in the sophistication of pepper.

It is interesting to note that the exemption, mentioned in section 8 of the Sale of Food and Drugs Act, in the case of a label being affixed to the article sold, intimating that the same is a mixture, does not apply in the case of poivrette, the admixture being made manifestly for the purpose of fraudulently increasing the weight and bulk.

Liverpool, 4th January, 1887.